

## **Workshop on Molecular Evolution, Marine Biological Laboratory**

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Molecular evolution has become the nexus of many areas of biological research. It both brings together and enriches such areas as biochemistry, molecular biology, microbiology, population genetics, systematics, developmental biology, genomics, computational biology, and bioinformatics. The Workshop in Molecular Evolution at the Marine Biological Laboratory has earned an international reputation for unparalleled excellence in teaching molecular evolution. Among the objectives of the Workshop are several that correspond to NASA program objectives. These include: 1. to provide advanced training in practical, theoretical, and analytical aspects of molecular evolution; 2. to provide advanced training in computational resources in molecular biology, molecular evolution, phylogenetics, and population genetics; 3. to promote application of molecular biology techniques to questions about prebiotic evolution, early evolution of life, and evolution of advanced life; and 4. to convey knowledge about the molecular record in living organisms, characteristics of the first living organisms, evolution of microorganisms in primitive environments, and relationships and evolution of extant life. These objectives are met through a combination of lectures, computer laboratory demonstrations and exercises, and a web site. The course was started by Mitchell Sogin, Marine Biological Laboratory, who served as Director of the Workshop for its first 12 years. With approximately 60 students enrolled each year through the summer of 2005 the Workshop has provided a rich and intensive learning experience for more than 1080 students since its inception. Due to the wide range of fields addressed by the study of molecular evolution, it is difficult to offer a comprehensive course in a university setting. No single institution maintains expertise in all necessary areas. In contrast, the Workshop is uniquely able to provide necessary breadth and depth by utilizing more than 20 faculty with appropriate expertise. Furthermore, the flexible nature of the Workshop allows for rapid adaptation to changes in the dynamic field of molecular evolution. To help serve a broader community and leverage course resources the Workshop has since 2000 expanded its outreach through an extensive web site. Although not meant to be a substitute for direct participation in the Workshop, the web site has nonetheless been quite successful. In less than 2 years through May 2005 since the web site for the Workshop on Molecular Evolution was redesigned it has received more than 5.2 million requests from more than 122,500 different computers worldwide. With continued funding the Workshop on Molecular Evolution will continue to fulfill its important role in the field.